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EXAMINER

CHOW, CHARLES CHIANG

ART UNIT	PAPER NUMBER
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2685

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/382,763

Applicant(s)

DEROME ET AL.

Examiner

Charles Chow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

**Office Action for
Applicant's Amendment
(February/12/2003)**

1. Regarding applicant's argument for the reconsideration based on the no teachings for the first generator for simultaneously providing carriers; the second signal generator to selectively providing selectable signal; the sine wave, the changing of phase relationship to minimize variance, as shown in applicant's amendment, pages 7, 8, 10; the ground of rejection has been changed to include Katznelson (US 5,125,100).

Regarding a first generator for simultaneously providing carriers, Katznelson teaches the first phase variable comb generator 176 for generating phase variable lines, simultaneously, to modulator 180a-180c having program source signals 181a-181c (abstract, figure in cover page, Fig. 8, col. 7, line 29-68). Katznelson teaches the second generator to be an auxiliary carrier generator 362 for output selected carriers to modulator 182 (figure in cover page, col. 8, lines 1-21).

Regarding the second signal generator to selectively providing selectable signal, Katznelson teaches the auxiliary carrier generator 362 is for generating selected harmonically related signals (in col. 4, lines 14-40; generators in col. 21, line 55 to col. 22, line 5). Katznelson teaches the comb line generator 271 as shown in Fig. 15.

Regarding the sum of sinewave, Katznelson teaches the phase reference lines, generated in phase variable comb generator 176, which are summed in modulator 182, as shown in figure of cover page.

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Regarding the changing of phase relationship to minimize variance, Katznelson teaches the phases are optimally adjusted for multiple carriers (Fig. 3), and the maintaining of the phase optimal (col. 3, line 63 to col. 4, line 15). Katznelson teaches the phase adjustment to reduce the variance (col. 10, line 36 to col. 11, line 3; and phase shifter 276 in col. 13, lines 8-39). Katznelson teaches the phase analyzer means, the phase adjustment means (col. 24, lines 31-43) for reducing the distortion variance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Argo et al. (US 4,764,978) in view of Maxwell (US 5,635,921), and further in view of Katznelson (US 5,125,100).

Regarding **claim 1**, Argo discloses, a transmitter, comprising a multi-signal generator for simultaneously providing a plurality of signals within a selected frequency band and having a center frequency and relative frequency spacing of said simultaneous plurality of signals (emergency radio transmitter as shown in Fig1, Fig. 2, abstract, for transmitting plurality of frequency signals of the entire frequency spectrum bands, abstract, for the simultaneously transmitting on AM, FM radio frequencies, as shown in col. 2, line 17-26; using AM band comb frequency generator and FM comb frequency generator, col. 7 lines 27-38).

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Argo considers the divide means 100, mixer 200, and the multiplied by 9 in 430 (Fig. 2) for providing the frequency spacing.

Argo discloses a modulator connected to said multi-signal generator for selectively and simultaneously modulating said plurality of signals, as shown in Fig. 2, the varactor modulator 390 for FM (Fig. 2), the AM modulator 260 (Fig. 2).

Argo does not include the details for the selectively controlling of the center frequency.

Maxwell teaches the center frequency is selectively adjusted to cover at least a portion of the selected frequency band (preselected various frequency bands, including emergency, police frequency bands, in abstract, summary of invention; using DDS 112 to adjust the center frequency, and the method of step 304 for determining of the particular frequencies).

Maxwell teaches a control unit for selectively controlling at least one of said multi-signal generator center frequency and relative frequency spacing (as shown in col. 8, line 51-57, col. 10, line 17-19 for the relative spacing frequencies for the AM, FM signals. The frequency controller 44 programs frequency spacing of the preselected desirable different frequencies for terminal 54, as shown in col. 7, line 27-53. In Fig. 4, the DDS 112' receives the controlling signal 120 from the control block 118. It would be obvious to include

Maxwell's selectively controlling the center frequency of the band and frequency spacing, to Argo's system. By doing so, Argo's emergency system would be upgraded for flexibly changing the center frequency of a frequency band with adjustable frequency spacing for covering more frequency bands for the emergency broadcast. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Argo, and to

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include Maxwell's selectively control the center of the frequency band and the frequency spacing, such that the emergency system could be upgraded to cover more frequency bands by changing the center of the frequency band.

In the above, it does not clearly indicate the first generator for simultaneously providing carriers; the second signal generator to selectively providing selectable signal; the sinewave, the changing of phase relationship to minimize variance.

Regarding a first generator for simultaneously providing carriers, Katznelson teaches the first phase variable comb generator 176 for generate phase variable lines to modulator 180a-180c for modulated with program source signals 181a-181c (abstract, figure in cover page, Fig. 8, col. 7, line 29-68). Katznelson teaches the second generator to be a auxiliary carrier generator 362 for output selected carriers to modulator 182 (figure in cover page, col. 8, lines 1-21).

Katznelson teaches the comb line generator 271 as shown in Fig. 15.

Regarding the second signal generator to selectively providing selectable signal, Katznelson teaches the auxiliary carrier generator 362 is for generating selected harmonically related signals (in col. 4, lines 14-40; generators in col. 21, col. 21, line 55 to col. 22, line 5).

Regarding the sum of sinewave, Katznelson teaches the phase reference lines, generated in phase variable comb generator 176, are summed in modulator 182, as shown in figure of cover page.

Regarding the changing of phase relationship to minimize variance, Katznelson teaches the phase optimally adjusted multiple carriers in Fig. 3. and maintaining phase optimal (col. 3, line 63 to col. 4, line 15). Katznelson teaches the phase adjustment to reduce the variance (in

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col. 10, line 36 to col. 11, line 3; phase shifter 276 in col. 13, lines 8-39). Katznelson teaches the phase analyzer means, the phase, phasor, adjustment means (col. 24, lines 31-43) for reducing the distortion variance. Katznelson provides the technique for generating multiple carriers by varying the phase, such that the amplitude variation could be reduced (col. 4, lines 48-52, Fig. 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Argo, and to include Katznelson's for generating multiple carriers by varying the phase, such that the system could generate multiple carriers with reduced amplitude variation.

Regarding **claim 2**, Maxwell teaches the wave memory for reproducing a selected waveform output signal providing said plurality of signals (Fig. 4, Read Only Memory 204, the address input, the receiving control from 120 for producing different waveforms at 114, 154, and plurality of frequencies from DDS 112, for the determined selected plurality of frequency sets). It would be obvious to include Maxwell's different waveforms stored in the read only memory. The stored different waveforms would efficiently provide the waveform modulation of the broadcast carriers immediately by just lookup the address input to the read-only memory. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Argo above, and to include Maxwell's efficient memory waveforms lookup, Argo as modified above, such that the system could efficiently accessing the modulating waveforms for the carriers.

Regarding **claim 3**, Argo has disclosed the plurality of frequencies of the set for AM band,

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FM band, as shown above the AM comb generator, the FM comb generator.

In the above it does not include the selective transferring of the prestored waveforms.

Regarding **claim 4**, Maxwell teaches the control unit provides prestored waveforms selectively transferred to said wave memory to provide said plurality of signals on a corresponding portion of said selected band, see in Fig. 3, the control block 118, signal 120, signal 140. In Fig. 2, col. 7, line 27, col. 7, line 39-46, the frequency control 44, for providing the transferred data for selected different frequencies.

Maxwell also teaches **claim 5**, the waveform converter to reproduced selected converted input signal, see in Fig 4, the digital to analog converter D/A 213 for reproduce the data incoming from latch 209, ROM 204. It would be obvious to include Maxwell's transferring of the stored waveform, D/A converter to Argo's system. By doing so, Argo's system could efficiently generate the modulated signal by swiftly referencing the stored waveform in the waveform memory, as shown above. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Argo above, and to include Maxwell's waveform transferring and D/A converter, such that the system could efficiently generate the modulated signal by referencing the stored waveform.

Argo discloses **claim 6**, the audio source 22 having a switch for the tape 22 for the audio memory, the microphone 32 being selective connected to the AM modulator 260, the converter such as the varactor diode FM modulator 390. Argo teaches the selection of the audio sources from audio memory or microphone.

Regarding **claims 7, 8, 9**, referring to the discussion in claim 1, as shown above, that Maxwell considers the programmable generator DDS 112, the mixer 108, AM modulator 150, the preselected frequencies of various radio bands, AM, FM, emergency frequencies, police band, fire fighter frequencies, in abstract. In Fig. 6, the step 304 for the means for determining of what frequencies are used in a particular location, for the selectively varied plurality of the different portions of the selected band. Maxwell discloses the utilization of the control 118, frequency control 44, for the controlling of the programmable signal generator, DDS 112. Maxwell utilizes the AM modulator 150, the mixer 108, for the connection to the DDS 112 of the programmable signal generator.

Regarding **claims 10, 11**, referring to the discussion in claims 1, 6, which also provides the claimed features for the audio memory, the microphone, selectively connected to said frequency modulator.

3. Claims 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Argo in view of Katznelson, Maxwell, as applied to claim 1 above, and further in view of Wilson (US 5,602,868).

In the above it does not clearly indicate the power amplifier selectively receiving the mixer output.

Regarding **claim 12**, Wilson teaches a power amplifier selectively receiving from one of said mixer output signal and said converted signal, and providing a transmitter output signal, see

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in abstract, front figure, Fig. 1, for a multiple-modulation communication system, having the element 200, for the FM, AM, including 201-207, 211-217, AM/FM selecting switch 209, the mixer 219. In col. 5, line 16-21, the mixer 219 sends signal to the power amplifier 105, 111. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Argo above, and to include Wilson's selecting AM or FM for the power amplifier, such that power amplifier could select the signal for each band.

Regarding **claim 13**, Maxwell has shown above, the first signal and the second signal generator having DDS outputs 114, for FM band spaced-frequencies, the AM band spaced frequencies, the control 118 means, the mixer, the power amplifier 132, 162. Referring to claim 1 above for the plurality of carrier signals from Argo.

Regarding **claim 14**, referring to the discussion in claim 6, which also provides the claimed features for the audio memory, the microphone.

Regarding **claim 15**, referring to the discussion in claim 1, which also provides the claimed features for the selecting of the frequencies, and the determining means for the selection from various different frequency sets, from Maxwell, for the substantially selected portion.

Regarding **claim 16**, referring to the discussion in claims 1, which also provides the claimed features for the first, second signal generator, the mixer.

4. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Argo in view of Katznelson, Maxwell, as applied to claim 1 above, and further in view of Schlosser

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(US 5,289,194).

In the above, it does not clearly indicate the calculating a variance.

Regarding **claim 17**, Schlosser teaches the calculating of the amplitude/phase variance for controlling the amplitude and phase using weighting factors deducted from the variance of the amplitude/phase (abstract, col. 2, lines 7-38). The summer for summing the weighted signals to produce a final output transform signal with best signal component enhanced (col. 8, line 66 to col. 9, line 3). It would be obvious to Schlosser's weighting factor of the amplitude and phase control using calculated variance from amplitude and phase, such that the system could be upgraded for controlling the amplitude and phase variations of the summed carriers using the calculated variance. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify and include Schlosser's weighting factor of the amplitude and phase control using calculated variance from amplitude and phase, to Argo as modified above, such that the system could be upgraded for controlling the amplitude and phase variations of the summed carriers using the calculated variance.

Regarding the sum of the sine wave, referring to Katznelson above.

Referring also to Hunsinger-'396 below for the teaching of the summing into time segment (the 52.6 microsecond. waveform generators 354-358 to the summer in Fig. 17).

Regarding **claim 18**, referring to the discussion in claim 17 above, which also provides the claimed features for the randomly changing the phase relationship of the sine wave signals.

Regarding **claim 19**, referring to the discussion in claim 1, which also provides the

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claimed features for the selecting of a set of frequencies.

Regarding **claim 20**, referring to the discussion in claim 1, which also provides the claimed features for the AM, FM.

5. Claims 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Argo in view of Katznelson, Maxwell, as applied to claim 1 above, and further in view of Hunsinger et al. (US 5,465,396).

In the above it does not clearly indicate the AM over FM, although, Katznelson has shown above the sum of sine wave from phase reference lines from 176 at modulator 182.

Hunsinger teaches **claim 21**, modulating said signal corresponding to the sum of said sine wave signals, see in front figure, abstract, col. 9, line 54-58, for simultaneously transmission of the AM over the FM to the broadcast band, utilizing the sum 22 for generating the composite signal, AM over FM for transmission. It would be obvious to include

Hunsinger's summing of the sine wave for AM, FM signals, such that the system could efficiently transmit the summed signal from one antenna. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Argo above, and to include Hunsinger et al.'s means for summing, generating the composite signal AM over FM, such that AM signal could share the common frequency translation element, power amplifier, and using single antenna.

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Regarding the single signal stepping from Maxwell, Maxwell does teaches the generating of various frequencies for nearby motor vehicles, or other emergency vehicles (in abstract, col. 2, lines 21-41). The audio message are sending over frequencies that are determined for particular location (Fig. 8, step 364, 368).

Katznelson also has shown above the modulator 182 for modulating summed phase reference comb lines.

Regarding **claim 22**, referring to the discussion in claim 22 above for the translation the sum of the AM over FM to the broadcast band, in the abstract.

***Response to Arguments
And
Conclusion***

6. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

Regarding applicant's argument for the no teaching for the no teachings for the first generator for simultaneously providing carriers; the second signal generator to selectively providing selectable signal; the sine wave, the changing of phase relationship to minimize variance, as shown in applicant's amendment, pages 7, 8, 10;

Katznelson teaches a first generator for simultaneously providing carriers from a phase variable comb generator 176 for generate phase variable lines, simultaneously, to modulator 180a-180c having program source signals 181a-181c (abstract, figure in cover page, Fig. 8, col. 7, line 29-68). Katznelson teaches the second generator to be a auxiliary carrier generator 362 for output selected carriers to modulator 182 (figure in cover page, col. 8, lines 1-21).

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Regarding the second signal generator to selectively providing selectable signal, Katznelson teaches the auxiliary carrier generator 362 is for generating selected harmonically related signals (in col. 4, lines 14-40; generators in col. 21, col. 21, line 55 to col. 22, line 5).

Katznelson teaches the comb line generator 271 as shown in Fig. 15.

Regarding the sum of sinewave, Katznelson teaches the phase reference lines, generated in phase variable comb generator 176, are summed in modulator 182, as shown in figure of cover page.

Regarding the changing of phase relationship to minimize variance, Katznelson teaches the phases are optimally adjusted for multiple carriers in Fig. 3. and maintaining phase optimal (col. 3, line 63 to col. 4, line 15). Katznelson teaches the phase adjustment to reduce the variance (in col. 10, line 36 to col. 11, line 3; phase shifter 276 in col. 13, lines 8-39).

Katznelson teaches the phase analyzer means, the phase adjustment means (col. 24, lines 31-43) for reducing the distortion variance.

In view of the disclosures in the above prior arts, claims 1-22 are remaining in the rejection manner.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (703)-306-5615.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban, can be reached at (703)-305-4385.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Charles Chow

April 18, 2003.



NGUYEN T. VO
PRIMARY EXAMINER